

TABLE 2 Actin assembly at the lamellipodial margin

Parameter	Mean (\pm SD)
Rate of rearward transport of actin meshwork in fibroblast lamellipodia (V)*	13.8 μ m/min
Length increment per monomer for F-actin (l_0) [#]	2.72 nm/monomer
Mean acute angle subtended by actin filaments and lamellipodium margin (θ)	64.7 \pm 16.5°
Rate of assembly of F-actin at the leading edge ($da/dt = V/l_0 \sin \theta$)	97 \pm 16 monomers/filament/s
G-actin concentration (\mathcal{G}) at the leading edge ($da/dt = k_{on}\mathcal{G} - k_{off}$) [§]	8.5 \pm 1.4 μ M
Area density of F-actin at lamellipodial margin (dL/dS) (this study)	278 \pm 106 μ m of F-actin/ μ m ²
Thickness of living lamellipodium (\mathcal{F}) (this study)	176 \pm 14 nm
F-actin density at lamellipodial margin ($dL/dS/\mathcal{F}$)	1580 \pm 613 μ m of F-actin/ μ m ³
Rate of F-actin assembly per μ m of lamellipodial margin ($Q = V(dL/dS)$)	3840 \pm 1460 μ m/min
Rate of actin monomer assembly per μ m of margin ($\mathcal{M} = Q/l_0$)	23,500 \pm 8940 monomers/s
Number of barbed ends supporting actin assembly per μ m of margin ($m = \mathcal{M}/(da/dt) = dL/dS \times \sin \theta$)	241 \pm 100
Gradient in \mathcal{G} at leading edge required to sustain actin assembly ($d\mathcal{G}/dx$) [¶]	\geq 7.28 \pm 2.90 μ M/ μ m
Density of barbed ends associated with front face of lamellipodium (m/\mathcal{F})	1370 \pm 578 / μ m ²
Estimated stall force for the barbed end of a rigid, anchored actin filament (f)	7.7 \pm 1.3 pN
\therefore Stall force for a 10 μ m-wide lamellipodium ($\mathcal{F} = 10 \times m \times f$)	18.6 \pm 8.3 nN
\therefore Stall pressure for a lamellipodium ($P = \mathcal{F}/10\mathcal{F}$)	10.5 \pm 4.8 kPa

*Fisher et al. (1988).

[#]Egelman (1985).

[§]Pollard (1986).

[¶]Lanni and Ware (1984), Luby-Phelps et al. (1987).

^{||}Hill (1981); Peskin et al. (1993).

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